Fig. 1. Synthetic gene for *P. falciparum* FVO strain AMA-1, employing *P. pastoris* codon preference

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        10         20         30         40         50
ATGAGGAAGTTGTACTGCGTTTTGTTGTTGTCTGCTTTCGAGTTCACCTA
 M  R  K  L  Y  C  V  L  L  L  S  A  F  E  F  T  Y>

        60         70         80         90        100
CATGATCAACTTCGGTCGTGGTCAGAACTACTGGGAGCATCCTTACCAGA
  M  I  N  F  G  R  G  Q  N  Y  W  E  H  P  Y  Q>

       110        120        130        140        150
AGTCTGACGTCTACCATCCTATCAACGAACATAGGGAGCATCCTAAGGAA
K  S  D  V  Y  H  P  I  N  E  H  R  E  H  P  K  E>

       160        170        180        190        200
TACGAATACCCACTGCATCAAGAGCACACTTACCAGCAGGAAGATTCTGG
 Y  E  Y  P  L  H  Q  E  H  T  Y  Q  Q  E  D  S  G>

       210        220        230        240        250
TGAAGATGAAAACACCTTGCAACACGCTTACCCCATCGATCATGAAGGAG
  E  D  E  N  T  L  Q  H  A  Y  P  I  D  H  E  G>

       260        270        280        290        300
CTGAACCAGCCCCTCAGGAACAAAACTTGTTCTCTTCCATCGAAATCGTG
A  E  P  A  P  Q  E  Q  N  L  F  S  S  I  E  I  V>

       310        320        330        340        350
GAAAGATCCAACTACATGGGTAACCCATGGACTGAGTACATGGCAAAGTA
 E  R  S  N  Y  M  G  N  P  W  T  E  Y  M  A  K  Y>

       360        370        380        390        400
CGACATCGAGGAAGTGCACGGAAGTGGTATCAGGGTTGATCTGGGTGAAG
  D  I  E  E  V  H  G  S  G  I  R  V  D  L  G  E>

       410        420        430        440        450
ATGCCGAAGTCGCTGGTACTCAGTACAGACTCCCTTCTGGTAAGTGCCCT
D  A  E  V  A  G  T  Q  Y  R  L  P  S  G  K  C  P>

       460        470        480        490        500
GTTTTCGGAAAGGGTATCATCATCGAAAACTCTAAGACTACTTTCCTCAA
 V  F  G  K  G  I  I  I  E  N  S  K  T  T  F  L  K>

       510        520        530        540        550
GCCTGTTGCTACTGGTAACCAAGATCTTAAGGACGGAGGTTTCGCTTTCC
  P  V  A  T  G  N  Q  D  L  K  D  G  G  F  A  F>

       560        570        580        590        600
CACCTACTAACCCTCTGATCTCTCCAATGACTTTGAACGGTATGCGTGAC
P  P  T  N  P  L  I  S  P  M  T  L  N  G  M  R  D>

       610        620        630        640        650
TTCTACAAGAACAACGAATACGTCAAGAACTTGGATGAATTGACTTTGTG
 F  Y  K  N  N  E  Y  V  K  N  L  D  E  L  T  L  C>
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FIG. 1A

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      660        670        680        690        700
TAGTAGACACGCTGGAAACATGAACCCTGATAACGACAAGAACAGTAACT
  S  R  H  A  G  N  M  N  P  D  N  D  K  N  S  N>

      710        720        730        740        750
ACAAGTACCCCGCGGTTTACGACTACAACGATAAGAAGTGTCACATCCTG
Y  K  Y  P  A  V  Y  D  Y  N  D  K  K  C  H  I  L>

      760        770        780        790        800
TACATCGCTGCCCAAGAAAACAACGGACCAAGATACTGTAACAAGGATCA
 Y  I  A  A  Q  E  N  N  G  P  R  Y  C  N  K  D  Q>

      810        820        830        840        850
AAGTAAGAGAAACTCTATGTTCTGTTTCAGACCTGCAAAGGACAAGCTGT
  S  K  R  N  S  M  F  C  F  R  P  A  K  D  K  L>

      860        870        880        890        900
TCGAAAACTACGTGTACTTGTCCAAGAACGTTGTCGATAACTGGGAAGAA
F  E  N  Y  V  Y  L  S  K  N  V  V  D  N  W  E  E>

      910        920        930        940        950
GTCTGCCCAAGAAAGAACCTCGAGAACGCAAAGTTCGGTCTGTGGGTCGA
 V  C  P  R  K  N  L  E  N  A  K  F  G  L  W  V  D>

      960        970        980        990       1000
TGGTAACTGTGAAGACATCCCTCATGTGAACGAGTTCAGTGCTAACGATT
  G  N  C  E  D  I  P  H  V  N  E  F  S  A  N  D>

     1010       1020       1030       1040       1050
TGTTCGAGTGTAACAAGCTGGTCTTCGAGTTGTCTGCCAGTGACCAACCT
L  F  E  C  N  K  L  V  F  E  L  S  A  S  D  Q  P>

     1060       1070       1080       1090       1100
AAGCAGTACGAACAGCATTTGACTGACTACGAAAAGATCAAGGAAGGATT
 K  Q  Y  E  Q  H  L  T  D  Y  E  K  I  K  E  G  F>

     1110       1120       1130       1140       1150
CAAGAACAAGAACGCCGATATGATCAAGTCCGCTTTCCTCCCAACCGGTG
  K  N  K  N  A  D  M  I  K  S  A  F  L  P  T  G>

     1160       1170       1180       1190       1200
CATTCAAAGCAGATAGATACAAGTCTCACGGTAAGGGTTACAACTGGGGA
A  F  K  A  D  R  Y  K  S  H  G  K  G  Y  N  W  G>

     1210       1220       1230       1240       1250
AACTACAACAGAGAAACCCAAAAGTGTGAAATCTTCAACGTCAAGCCTAC
 N  Y  N  R  E  T  Q  K  C  E  I  F  N  V  K  P  T>

     1260       1270       1280       1290       1300
CTGCCTCATCAACGACAAGTCCTACATTGCGACTACTGCCCTGTCTCATC
  C  L  I  N  D  K  S  Y  I  A  T  T  A  L  S  H>
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FIG. 1B

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      1310       1320       1330       1340       1350
CAATCGAAGTCGAACACAACTTCCCCTGCAGTCTCTACAAGGACGAGATC
P  I  E  V  E  H  N  F  P  C  S  L  Y  K  D  E  I>

      1360       1370       1380       1390       1400
AAGAAGGAAATCGAGCGTGAAAGTAAGCGTATCAAGTTGAACGATAACGA
 K  K  E  I  E  R  E  S  K  R  I  K  L  N  D  N  D>

      1410       1420       1430       1440       1450
CGACGAAGGTAACAAGAAGATCATCGCACCTAGGATCTTCATCTCCGATG
  D  E  G  N  K  K  I  I  A  P  R  I  F  I  S  D>

      1460       1470       1480       1490       1500
ACAAGGATTCCCTCAAGTGTCCTTGTGACCCTGAGATGGTGAGTCAGTCC
D  K  D  S  L  K  C  P  C  D  P  E  M  V  S  Q  S>

      1510       1520       1530       1540       1550
ACTTGTAGATTCTTCGTTTGCAAGTGCGTCGAACGTAGAGCCGAAGTCAC
 T  C  R  F  F  V  C  K  C  V  E  R  R  A  E  V  T>

      1560       1570       1580       1590       1600
TAGTAACAACGAAGTTGTCGTGAAGGAAGAATACAAGGATGAATACGCTG
  S  N  N  E  V  V  V  K  E  E  Y  K  D  E  Y  A>

      1610       1620       1630       1640       1650
ATATTCCAGAGCATAAGCCTACGTACGATAACATGAAGATCATCATCGCT
D  I  P  E  H  K  P  T  Y  D  N  M  K  I  I  I  A>

      1660       1670       1680       1690       1700
AGTTCTGCTGCTGTCGCTGTTCTGGCTACTATCCTCATGGTGTACCTTTA
 S  S  A  A  V  A  V  L  A  T  I  L  M  V  Y  L  Y>

      1710       1720       1730       1740       1750
CAAGAGAAAGGGAAACGCTGAGAAGTACGACAAGATGGATCAACCTCAAC
  K  R  K  G  N  A  E  K  Y  D  K  M  D  Q  P  Q>

      1760       1770       1780       1790       1800
ATTACGGTAAGAGTACTTCCAGGAACGATGAGATGTTGGATCCAGAGGCC
H  Y  G  K  S  T  S  R  N  D  E  M  L  D  P  E  A>

      1810       1820       1830       1840       1850
TCCTTCTGGGGTGAGGAGAAGAGAGCCTCTCATACTACTCCAGTTTTGAT
 S  F  W  G  E  E  K  R  A  S  H  T  T  P  V  L  M>

      1860
GGAGAAGCCTTACTACTAA
  E  K  P  Y  Y  *>
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FIG. 1C